



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of :
Kenji SEKO et al.

Appln. No. 10/500,140

Group Art Unit: 1792

Examiner: CAMERON, ERMA C

Filed: 07/08/2004

For: METHOD OF FORMING COATING FILM

Commissioner of Patents
PO Box 1450
Alexandria, VA 22313-1450
Sir:

DECLARATION UNDER 37 C.F.R. Section 1.132

I, Yoshizumi MATSUNO, do hereby declare that:

1. I am a Japanese citizen, residing at c/o Nagoya plant of KANSAI PAINT CO., LTD., Aza Hirachi 1, Oaza, Azabu, Miyoshi-cho, Nishi-Kamo-gun, Aichi, Japan.
2. I graduated from Cluster III (Department of Chemistry, Biotechnology, and Process Engineering), Faculty of Engineering, Hiroshima University, Hiroshima, Japan, in March 1985.
3. I began my employment with KANSAI PAINT CO., LTD., the assignee of the above-identified application in April 1985. Since April 1985, I have been engaged in the design development of coating compositions for automobiles.
4. I am one of the named inventors of the above-identified application, and am familiar with the subject matter of said application as well as the disclosures in the cited references.
5. The experiments given below were carried out under my general direction and supervision.

Experiments 1-4

Experiment 1

The test sheet obtained in Production Example 15 of the instant specification was coated with coating composition No. 3 by air spraying to a coating thickness of 40 μm (when cured), and was left to stand at room temperature for 7 minutes to form a wet coating film. The coating film was then heated in an air-heating furnace at 140 °C for 20 minutes to form a semicured coating film. To improve surface quality, dust or other foreign matter adhering to the semicured coating film surface was removed by sanding the film, and then polishing the film using a polishing compound.

Subsequently, using a 120 W/cm metal halide lamp as a light source, the coating film was irradiated with ultraviolet light (wavelength: 365 nm) for about 10 seconds at a dosage of 1,000 mJ/cm^2 . The semicured coating film was thus substantially fully cured to form a clear top coat.

Experiments 2 to 4

The procedure of Experiment 1 was repeated except that the heating and irradiating conditions were changed to those described in the following Table 1.

The abilities of the film formation methods of Experiments 1 to 4 to repair each coating film and the properties of the clear top coating films formed in these experiments were tested according to the methods described in the instant specification.

The following Table 1 shows the test results and film-curing conditions of Experiments 1 to 4 and Example 3 of the instant specification.

TABLE 1

Example 3			Experiment 1	Experiment 2	Experiment 3	Experiment 4	The Range of Claim 1
Coating Composition	No.3	No.3	No.3	No.3	No.3	No.3	--
Step 1 Heating	°C	80	140	140	50	200	70-160
	min.	15	20	20	20	20	10-20
Step 2 Irradiating	mJ/cm ²	1000	400	2000	1000	1000	500-1500
	sec.	10	10	10	10	10	3-60
Ability to Repair	A	A	A	A	A	C	--
Pencil Hardness		H	H	H	3B	2H	--
Surface Smoothness	A	B	B	B	B	B	--

Underlined values are out of the range described in Claim 1.

Consideration of the Results of Experiments

As shown in the above Table 1, the coating film surface has an orange peel-like appearance when the heating temperature and dosage of ultraviolet light are out of the range described in amended Claim 1. Also, the coating films of Experiments 1 to 4 have a pencil hardness of 3B to H. Namely, the coating films are not sufficiently cured.

On the other hand, the coating film of Example 3 has surface smoothness and the ability to repair films well.